

MEMORANDUM

164 So. Mallagh Street, Nipomo Multi-Family Residential Development

Date: January 8, 2015

To: Michael Peachey, AIA

From: Robert Miller, PE

Subject: Detention Calculations for 164 S. Mallagh Street, Nipomo



The County has requested detention calculations to supplement our previous low impact development calculations. During the 50 year post-development storm event, the maximum allowable total outflow shall be no more than the 2-year pre-development discharge. The detention of the required volume shall occur within the planned commons area / basin. Key project characteristics are as follows:

- Total site tributary area = 0.55 acre
- Pre-development runoff coefficient "C" value = 0.4' assuming poorly draining surface soils per SLO Co. Std. H-3a
- Post-development runoff coefficient is calculated as follows:
 - Impervious area: 0.1 acre, C value of 1.0
 - Remainder of site: 0.45 acre, C value of 0.5 per SLO Co. Std H3
 - Weighted C value = 0.6
- Annual rainfall total: 15", so use Table 2, SLO Co. Std H-4
- 2-year intensity with 10 min TC = 1.3 in/hr
- Allowable outflow = $CiA = 0.4' \times 1.3 \times 0.55 = 0.29$ cfs
- Basin inflow varies by time of concentration as shown in the attached table.

Basin characteristics, not including any allowance for infiltration:

- Outflow elevation at curb = 323.97'
- Max water surface elevation in basin (1' below lowest finished floor) = 324.5'
- Available surface area within commons area at max water surface elevation = 2,500 sq ft.
- Calculated required storage volume: 495 cubic ft, which can be provided in a ponded depth of 0.2' in the basin. The outflow tuning will be confirmed during final design.

Please let me know if you have any questions, or if you need more information.



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Detention Calculations for 164 S Mallagh Street
DRC2014-00014

Pre development C: 0.4
 Post development weighted C: 0.6
 Total tributary area: 0.55 acre
 Time of concentration: 10 min
 Average annual rainfall: 16 in/year
 2 year, 10 min intensity 1.3 in/hr
 Allowable 2 year outflow for pre development conditions: 0.29 cfs

Time of Concentration (min)	50 year intensity (in/hr)	Q in (cfs)	Q out allowable (cfs)	Net Q to storage (cfs)	Storage volume required (cu ft)	Comments
10	3.00	0.99	0.29	0.70	422.40	
15	2.50	0.83	0.29	0.54	485.10	
30	1.70	0.56	0.29	0.28	495.00	Max storage required - 495 cu ft, approximately 0.2' in commons/basin
60	1.10	0.36	0.29	0.08	277.20	
120	0.81	0.27	0.29	-0.02	N/A	
180	0.74	0.24	0.29	-0.04	N/A	
360	0.60	0.20	0.29	-0.09	N/A	